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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,430	09/13/2001	Takahisa Aoyama	L9289.01183	4492
24257	7590	11/30/2004	EXAMINER	
STEVENS DAVIS MILLER & MOSHER, LLP			JOSEPH, JAISON	
1615 L STREET, NW			ART UNIT	
SUITE 850			PAPER NUMBER	
WASHINGTON, DC 20036			2634	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/936,430

Applicant(s)

AOYAMA ET AL.

Examiner

Jaison Joseph

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesugi (US patent 6,002,727) in view of Hotani et al (US Patent 5,953,378).

Regarding claim 1, 5 and 6, Useugi teaches an interference signal cancellation apparatus having likelihood calculating means (Fig 1,108) for calculating likelihoods of respective symbols included in an input signal, a order determining (rank deciding) device 110 for deciding the rank of symbols on the basis of the likelihood, respreading (demodulating) means 111 for respreading the symbols on the basis of the decided rank or order, and a subtracting (removing) means for removing the demodulated symbols from said input signal and making the same into a new input signal. Useugi failed to teach a threshold value judging means for judging a threshold value by comparing a calculated likelihood with an appointed threshold value. However, Hotani et al teach a likelihood calculating circuit for calculating the likelihood of the received data (se column 5 line 52 – 55) and a threshold determination means for comparing the output of the likelihood calculator with the threshold value (see column 5 lines 58 – 60). It is well known in the art that in order to use the likelihood calculation data, one have to compare the likelihood calculating results with a threshold value. Therefore, it would be obvious

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to an ordinary skilled in the art at the time of the invention was made to use the teachings of Hotani et al, a likelihood calculator with a threshold comparator in a interference signal canceling system, to achieve a predetermined target value.

Regarding claim 2, which inherits the limitations of claim 1, Hotani et al further discloses that the threshold control circuit 235 generates a threshold control signal, the threshold value being controlled based on this signal (see column 11, lines 64 – 67).

Regarding claim 3, which inherits the limitations of claim 2, Hotani et al further discloses that threshold determination means for comparing the output of the adding means with the threshold value and determining the position for frame synchronization based on the results of this comparison (see column 5, line 58 – 61).

Regarding claim 4, which inherits the limitations of claim 1, Hotani et al further discloses that the threshold of the threshold determination circuit is controlled in response to the counter value of up/down counter 234 which indicate the past synchronization values (see column 12 lines 19 – 22).


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jaison Joseph  
Patent Examiner



**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
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